

Claims

What is claimed is:

1. A method of reinforcing a tower comprising:
 forming a reinforcement column including:
 applying a fluid reinforcing material to embed a vertical length of
 the tower; and
 holding the fluid reinforcing material in place along the vertical
 length of the tower until it solidifies to form the reinforcement column
 having the length of tower embedded therein.
2. The method of reinforcing a tower as in claim 1, wherein the tower is a guy tower comprising a metal skeletal structure.
3. The method of reinforcing a tower as in claim 1, wherein the tower is a monopole tower comprising a metal tubular structure.
4. The method of reinforcing a tower as in claim 1, wherein the fluid reinforcing material comprises wet concrete cement.
5. The method of reinforcing a tower as in claim 1, further comprising embedding a plurality of spaced apart tension cables into and extended vertically through the reinforcement column.
6. The method of reinforcing a tower as in claim 1, wherein applying the fluid reinforcing material comprises pouring the fluid reinforcing material into a mold around the tower.

7. The method of reinforcing a tower as in claim 1, wherein applying the fluid reinforcing material comprises spraying the fluid reinforcing material onto the vertical length of the tower.
8. A method of reinforcing a tower comprising:
 - a. forming a mold in the shape of a column around a portion of the tower;
 - b. pouring wet concrete cement into the mold;
 - c. allowing the poured wet concrete cement to at least partially solidify in mold; and
 - d. releasing the mold from the partially solidified concrete cement so that a concrete reinforcement column is formed encapsulating the tower.
9. The method of forming a concrete column in claim 8, wherein forming the mold further comprises forming a cylindrically shaped mold.
10. The method of forming a concrete column in claim 8, further comprising molding a plurality of spaced apart tension cables into and extending vertically through the concrete reinforcement column.
11. The method of forming a concrete column as in claim 8, further comprising providing tensioners for tensioning the tension cables.
12. The method of forming a concrete column as in claim 10, further comprising providing tensioners for tensioning the tension cables from the bottom of the concrete reinforcement column.
13. The method of forming a concrete column as in claim 10 further comprising providing tensioners for tensioning the tension cables from the top of the reinforcement column.

14. The method of reinforcing a tower as in claim 8, further comprising attaching an antenna support structure to the tower structure that is partially embedded as the reinforcement column is formed.
15. The method of reinforcing a tower as in claim 8, further comprising attaching an antenna support structure by clamping or otherwise to the concrete reinforcement column after the reinforcement column is formed.
16. The method of reinforcing a tower as in claim 8, further comprising attaching an antenna support structure to an un-embedded portion of the guy tower above the reinforcement column.
17. A method of reinforcing a metal guy tower comprising forming a concrete reinforcement column with an existing vertical length of the guy tower embedded in the reinforcement column.
18. The method of reinforcing a guy tower as in claim 17, wherein forming a concrete reinforcement column further comprises:
 - a. forming a mold around a lower portion of the guy tower to form a lower column section;
 - b. pouring wet concrete into the mold;
 - c. allowing the poured concrete to at least partially cure;
 - d. releasing the mold from the lower column section;
 - e. raising the mold and positioning the mold at an upper portion of the tower contiguous with the lower portion of the tower; and
 - f. molding an upper column section contiguous with the lower column section.
19. The method of reinforcing a guy tower as in claim 17, wherein forming a concrete reinforcement column further comprises:

- a. forming a mold from the bottom of the guy tower to a desired height of the concrete reinforcement column;
 - b. pouring concrete into the mold;
 - c. allowing the poured concrete to at least partially cure; and
 - d. releasing the mold from the concrete reinforcement column.
20. The method of reinforcing a guy tower as in claim 17, wherein forming a concrete reinforcement column comprises forming a concrete column extending only partially along the entire vertical length of the guy tower.
21. The method of reinforcing a guy tower as in claim 17, wherein forming a concrete reinforcement column comprises forming a concrete column extending the entire vertical length of the guy tower.
22. The method of reinforcing a guy tower as in claim 17, further comprising:
- a. removing guy wires as the concrete reinforcement column is molded upward;
 - b. adding brackets connected to the concrete reinforcement column;
 - c. removing the mold from the concrete reinforcement column; and
 - d. attaching the guy wires to the brackets.
23. The method of reinforcing a guy tower as in claim 17, further comprising molding an antenna support structure into the concrete reinforcement column.
24. The method of reinforcing a guy tower as in claim 17, further comprising attaching an antenna support structure to the tower structure that is partially embedded in the concrete reinforcement column as the reinforcement column is formed.

25. The method of reinforcing a guy tower as in claim 17, further comprising attaching an antenna support structure by clamping or otherwise to the concrete reinforcement column after the concrete reinforcement column is formed.
26. The method of reinforcing a guy tower as in claim 17, further comprising attaching an antenna support structure to an un-embedded portion of the guy tower above the concrete reinforcement column.
27. The method of reinforcing a guy tower as in claim 17, wherein forming the mold further comprises forming a cylindrically shaped mold.
28. The method of reinforcing a guy tower as in claim 17, further comprising molding a plurality of spaced apart tension cables into and extending vertically through the concrete reinforcement column.
29. The method of reinforcing a guy tower as in claim 28, further comprising providing a tensioner for tensioning the tension cables in the concrete reinforcement column.
30. A method of reinforcing a monopole tower comprising forming a concrete reinforcement column encapsulating a vertical length of the monopole tower.
31. The method of reinforcing a monopole tower as in claim 30, wherein forming a concrete reinforcement column further comprises:
 - a. forming a mold around a portion of the monopole tower;
 - b. pouring concrete into the mold;
 - c. allowing the poured concrete to at least partially solidify; and
 - d. releasing the mold from the partially solidified concrete.
32. The method of reinforcing a monopole tower as in claim 30, wherein forming a concrete reinforcement column further comprises:

- a. forming a mold around a lower portion of the monopole tower to form a lower column section;
 - b. pouring wet concrete into the mold;
 - c. allowing the poured concrete to at least partially cure;
 - d. releasing the mold from the lower column section;
 - e. raising the mold and positioning the mold at an upper portion of the tower contiguous with the lower portion of the tower; and
 - f. molding an upper column section contiguous with the lower column section.
33. The method of reinforcing a monopole tower as in claim 30, wherein forming a concrete reinforcement column further comprises:
- a. forming a mold from the bottom of the monopole tower to a desired height of the concrete column;
 - b. pouring concrete into the mold;
 - c. allowing the poured concrete to at least partially cure; and
 - d. releasing the mold from the concrete reinforcement column.
34. The method of reinforcing a monopole tower as in claim 30, wherein the concrete reinforcement column formed extending only partially along the entire vertical length of the monopole tower.
35. The method of reinforcing a monopole tower as in claim 30, wherein forming a concrete reinforcement column is formed extending the entire vertical length of the monopole tower.
36. The method of reinforcing a monopole tower as in claim 30, further comprising molding an antenna support structure into the concrete reinforcement column.
37. The method of reinforcing a monopole tower as in claim 30, further comprising attaching to the tower an antenna support structure that is partially embedded in

the concrete reinforcement column as the concrete reinforcement column is formed.

38. The method of reinforcing a monopole tower as in claim 30, further comprising attaching an antenna support structure by clamping or otherwise to the concrete column after the concrete reinforcement column is formed.
39. The method of reinforcing a monopole tower as in claim 30, further comprising attaching an antenna support structure to an un-embedded portion of the monopole tower above the concrete reinforcement column.